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SURVEY OF ENGELMANN SPRUCE BEETLE INFESTATION ON THE PAYETTE NATIONAL FOREST IN 1948

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SURVEY OF ENGELMANNSPRUCE BEETLE INFESTATION ON THE PAYETTE NATIONAL FOREST IN 1948

By A. L. Gibson

Two areas of Engelmann spruce beetle infestation were recorded on the Payette National Forest in 1947. The severity of the infestation noted on these areas warranted a more intensive examination of them to determine the outbreaks general severity and extent. As these outbreaks had built up as a result of a widespread blowdown, it was felt that other Engelmann spruce stands might be similarly effected.

In July of 1948, preliminary extensive work was done and revealed the necessity for a general survey of Engelmann spruce stands. On this preliminary survey the writer had one assistant and on the general survey in September six men were employed.

Original plans were to inspect all Engelmann spruce stands but a conference with Mr. Kenneth Wilde and other Forest Service personnel quickly revealed the impossibility of attaining that objective in the time available. It was decided to limit inspection and survey to areas falling within one of the three following categories; (1) Engelmann spruce beetle infestation known to be present, (2) Engelmann spruce blowdown known to have occurred, (3) one of the two preceding conditions were believed to be present. Many areas were covered during the July 16 - 26th preliminary examination and others during the subsequent survey from September 3 - 13th. Although infested areas may have been missed in these examinations, it is felt a fairly complete picture of infestation conditions in Engelmann spruce stands has been obtained for the Payette Forest.

Engelmann-spruce-beetle-infested material consists of trees, windfalls, the tops of trees broken out by the wind, and the stubs of such trees. The various kinds of infested material and other data for control units are given in the unit descriptions in the following pages.

FISHER CREEK UNIT

This unit is the Fisher Creek drainage north of Slater Meadows, and is located in Townships 20 and 21 north and Range 3 east. The Engelmann spruce is, in general, limited to a narrow strip along Fisher Creek. The infestation has not invaded standing trees as yet, being limited to windthrown and wind-damaged material. Two-thirds of the attacked material is windfalls harboring a heavy brood of new adults. Windbroken tree tops and stubs comprise the remaining infested material.

Woodpeckers usually eliminate much of the brood in the stubs. Tops and windfalls, however, are protected by snow from this controlling agent during the period when it is most effective. Data for the unit is as follows:

Fisher Creek Unit	Acreage 600
Acres of sample	39
Infested material on unit	
Windfalls attacked in 1947	185
" " " 1948	31
Tops attacked in 1947	61
Stubs " " 1948	46

There are good camp sites on this drainage and only a small amount of work would be necessary to make the stock driveway up Fisher Creek passable to small trucks for carrying treating crews and equipment. The present road and the new one being constructed into this general area will make this unit comparatively accessible. Because of the preceding conditions, control costs should not be excessive and salvage of some of the infested material may be possible.

FISHER CREEK - BRUNDAGE RESERVOIR DIVIDE UNIT

This unit extends north from Brundage Reservoir to the southwest edge of Slater Meadows and includes about 800 acres of Engelmann spruce type. The infestation, which has built up in windthrown and winddamaged trees, has begun to invade standing trees. Windfalls, containing a heavy brood, comprise about two-thirds of the infested material. Data for this unit is as follows:

Fisher Creek - Brundage Reservoir Divide Unit Acreage 800

Acres of sample	52.5
Infested material on unit	
Standing trees - attacked in 1948	56
Windfalls - attacked in 1947	208
" " " 1948	226
Stubs - " " 1948	188

With a road already present and a new one being constructed through the unit, this area is even more accessible than the Fisher Creek Unit to the north. Both units could easily be served from one camp.

GRANITE LAKE UNIT

Windfalls and other winddamaged material have favored the build up of a heavy brood which started to invade standing trees in 1948. However, heavily infested windfalls still comprise about two-thirds of the total material containing brood of the Engelmann spruce beetle. Data for this area is as follows:

Granite Lake Unit Acreage 1300

Acres of sample	51.8
Infested material on unit	
Standing trees - attacked in 1948	52
Windfalls - " " 1947	650
" - " " 1948	52
Tops - " " 1947	26
" - " " 1948	130
Stubs - " " 1947	182

This unit adjoins the Fisher Creek Unit on the east. It embraces about 15 chains of infested timber type bordering Granite Lake from the south side, counterclockwise to the northwest side of the lake. Westward from the above point it extends for about twenty chains, then south and southwest for about 70 chains on both sides of the lake outlet.

Although the least accessible of the three units on this drainage, it too could be worked from a camp on Slater Meadows. However, the timber on the east and north sides of the lake would be much more accessible to a camp in that vicinity. A jeep has made the trip to the lake but over terrain extremely rough and steep.

The preceding three units could be treated from one camp although, as previously stated, part of the Granite Lake Unit would be more accessible from a camp near the lake. The three units have about 2100 trees, windfalls, tops and stubs to be treated.

HAZARD LAKE UNIT

Examination was made of the Engelmann spruce stands in the vicinity of Little Hazard, and Big Hazard Lakes. It revealed infestation was limited to the one area of about 350 acres extending clockwise from the southeast side of Hazard Lake to its northwest tip and extending as much as 50 chains to the west.

Infestation on this area has already caused heavy losses in standing trees. The latter are over 25 percent of the infested material on the area, increasing from 12 in 1947 to 205 attacked in 1948. Complete data for the unit is as follows:

Hazard Lake Unit		Acreage 350
Acres of sample		29.0
Infested material on unit		
Standing trees - attacked in	1947	12
" " - " "	1948	205
Windfalls - " "	1947	72
" - " "	1948	12
Tops - " "	1947	12
Stubs - " "	1947	12
" - " -	1948	169

This unit may be accessible to motor transportation if the road construction begun in the fall of 1948 was completed. It is at the north end of a series of units extending from Goose Lake. Hazard Lake may also be used as the supply point, if control work is done at Elk Meadows.

CORRAL CREEK UNIT

This 1,000 acre unit includes the Corral Creek drainage and Duck Creek for about 60 chains from its junction with Corral Creek. Losses to standing timber have been heavy in the past two years and amount to about 25 percent of the infested material.

The road to Hazard Lake traverses this unit and no point where control is indicated is over 60 chains from it. The data for the unit is tabulated below:

Corral Creek Unit		Acreage 1,000
Acres of sample		97.2
Infested material on unit		
Standing trees - attacked in	1947	92
" " - " "	1948	92
Windfalls - " "	1947	319
" - " "	1948	216
Stubs - " "	1947	10
" - " "	1948	20

This unit is but a short distance north of the Goose Lake guard station.

GOOSE LAKE UNIT (NORTH AREA)

This unit adjoins the Corral Creek unit on the south. Losses to standing timber on this area have as yet been low, but there is a great deal of heavily infested material on the ground. This data is shown in the following tabulation:

Goose Lake Unit (North Area)		Acreage 200
Acres of sample		29.8
Infested material on unit		
Standing trees - attacked in	1948	6
Windfalls - " "	1947	74
" - " "	1948	6
Tops - " "	1947	74
" - " -	1948	6
Stubs - " "	1947	6
" - " "	1948	13

The Hazard Lake Road runs through this area which lies between Goose Lake and the Corral Creek unit.

GOOSE LAKE UNIT (SOUTH AREA)

This area at the south end of Goose Lake has suffered no losses to standing timber as yet but the stage is all set for such an eventuality because of the heavily infested material on the ground.

The data for this comparatively light infestation is as follows:

Goose Lake Unit (South Area)		Acreage 250
Acres of sample		13.2
Infested material on unit		
Windfalls attacked in	1947	38
Tops " "	1947	19

Located at the south end of Goose Lake, this area would be readily accessible to crews working from the Goose Lake Guard cabin.

SQUAW MEADOWS UNIT

This unit is estimated to contain 1840 acres which carry an infestation. Many windfalls and other windbroken material are heavily infested. This favorable host material for the Engelmann spruce beetle also originated in the winter of 1946-47, according to reports received. Some of these windfalls and stubs were not attacked until the summer of 1948.

More infested material for 1947 than for 1948 gives an impression that the outbreak may be declining. This is not the case. Only part of the brood which developed in the trees attacked in 1947 emerged to attack in 1948. There is still a profusion of brood beneath the bark of winddamaged material attacked in 1947. These insects are expected to attack in the spring of 1949. The data for the area is as follows:

Squaw Meadows Unit				Acreage 1840
Acres of sample				122.2
Infested material on unit				
Standing trees	-	attacked in	1947	15
" "	-	"	1948	15
Windfalls	-	"	1947	404
"	-	"	1948	180
Tops	-	"	1947	210
"	-	"	1948	29
Stubs	-	"	1947	105
"	-	"	1948	44

This area is readily accessible by road and may even offer a good chance for salvage of at least some of the material.

Good camp sites are available on this unit alongside or close to the road.

LICK CREEK UNIT

This sale area supports considerable infestation in a few trees and windfalls but chiefly in the many cull logs, tops, and stumps. However, there is more uninfested material of the same nature to absorb attacks than there is attacked materials. Furthermore, logging on the south end of the area resulted in the cutting of many logs in 1947 which were not removed from the woods that year due to weather conditions. These logs have absorbed many attacks. The hauling of these logs in 1948 will

remove considerable brood from the area. Cutting in 1948 is also expected to result in many of the logs absorbing some attacks. If logs are again left in the woods in the winter of 1948-49, they too should attract many insects before the logs are removed in the summer of 1949.

Due to the conditions just discussed it is felt that infestation conditions are not serious on this unit at present. However, the area should be examined again in 1949.

BOULDER CREEK UNIT

The serious losses to Engelmann spruce in this drainage have apparently come to an end. Heavy windthrow and damage along the borders of the creek apparently furnished the material which caused the development of the outbreak, but the necessity of the beetles invading standing trees subjected them to the control effect of woodpeckers. It is believed this outbreak may have developed a year or two earlier than that on the other units. Only a few trees were attacked on this area in 1948, and the losses are expected to decrease even further in 1949.

BOULDER LAKE UNIT

This area joins the Boulder Creek Unit on the east. Losses have not been heavy on this area and the small amount of infestation at the southwest corner of the lake is expected to decrease even further in 1949.

HARD CREEK UNIT

This unit lies between the Hazard Lake and Corral Creek Units, adjoining the latter on its north edge. Infestation is too light to warrant control and will probably decrease even further in 1949 as nearly three-fourths of the attacks are in standing trees.

Examinations were not limited to the stands on which infestation was found. The vicinity of all areas infested was examined in order to determine the boundary of the outbreak and to learn if any nearby areas also were infested. In consequence of these examinations at least 30,000 acres were covered. This does not represent, however, all Engelman spruce stands, or host type where Engelmann spruce is insufficient in composition to class it as that type. Further examinations should be made as soon as weather permits, into these other areas. It is believed this could be done early in July, for areas at low elevation, and later in the month for those at higher elevations. It would seem profitable to conduct these examinations prior to the institution of control in order that any infested areas found might be incorporated in the control plan.

It is known that one area, Elk Meadows, is infested and a survey of it will be necessary.

Areas surveyed but found to contain too small an amount, or no infestation, are as follows:

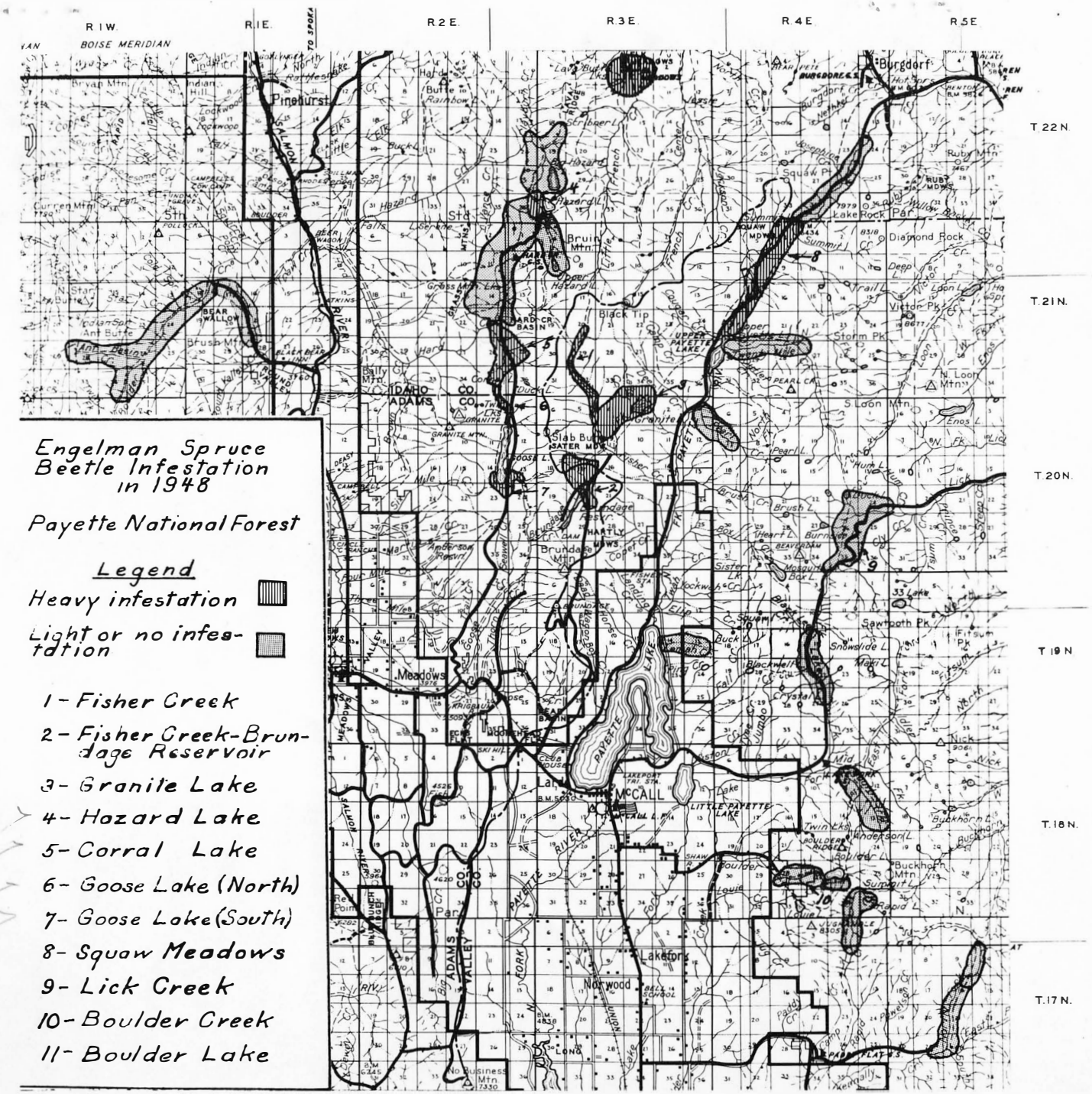
Boulder Creek (Weiser)
Twenty-Mile Creek
Pearl Creek
Lemah Creek
South Fork of Lake Fork
Rapid Creek
North Fork of Kennealy Creek

A complete coverage of all these drainages was not obtained but the areas examined revealed no condition likely to cause a build-up of infestation.

A summary of the data for the infested areas is given in the following tabulation:

ENGELMANN SPRUCE BEETLE INFESTATION ON THE PAYETTE NATIONAL FOREST IN 1948

Unit	Infested Acreage	Acres of Sample	Standing Trees Attacked in 1947	Standing Trees Attacked in 1948	Windfalls Attacked in 1947	Windfalls Attacked in 1948	Tops Attacked in 1947	Tops Attacked in 1948	Stubs Attacked in 1947	Stubs Attacked in 1948
Fisher Creek	600	39	--	--	185	31	61	--	--	46
Brundage Reservoir	800	52.5	--	56	208	226	--	--	--	188
Granite Lake	1300	51.8	--	52	650	52	26	130	182	--
Hazard Lake	350	29.0	12	205	72	12	12	--	12	169
Corral Creek	1000	97.2	92	92	319	216	--	--	10	20
Goose Lake (North)	200	29.8	--	6	74	6	74	6	6	13
Goose Lake (South)	250	13.2	--	--	38	--	19	--	--	--
Squaw Meadows	1840	122.2	15	15	404	180	210	29	105	44
	6340	434.7	119	426	1950	723	402	165	315	480


R.1W.
R.1E.
R.2E.
R.3E.
R.4E.
R.5E.
BOISE MERIDIAN
T.22N.
T.21N.
T.20N.
T.19N.
T.18N.
T.17N.
McCALL
Pinehurst
Burgdorf
Lakefork
Norwood
Meadows
Brundage Mtn.
Bruin Mtn.
Granite
Payette Lake
Little Payette Lake
Engelman Spruce Beetle Infestation in 1948
Payette National Forest
Legend
Heavy infestation
Light or no infestation
1 - Fisher Creek
2 - Fisher Creek-Brundage Reservoir
3 - Granite Lake
4 - Hazard Lake
5 - Corral Lake
6 - Goose Lake (North)
7 - Goose Lake (South)
8 - Squaw Meadows
9 - Lick Creek
10 - Boulder Creek
11 - Boulder Lake